

# Formative assessment with IMS LD and IMS QTI

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# Overview

- Why use LD+QTI together?
- How to use LD+QTI together?
- Demo
- New R&D: Supporting new forms of assessment



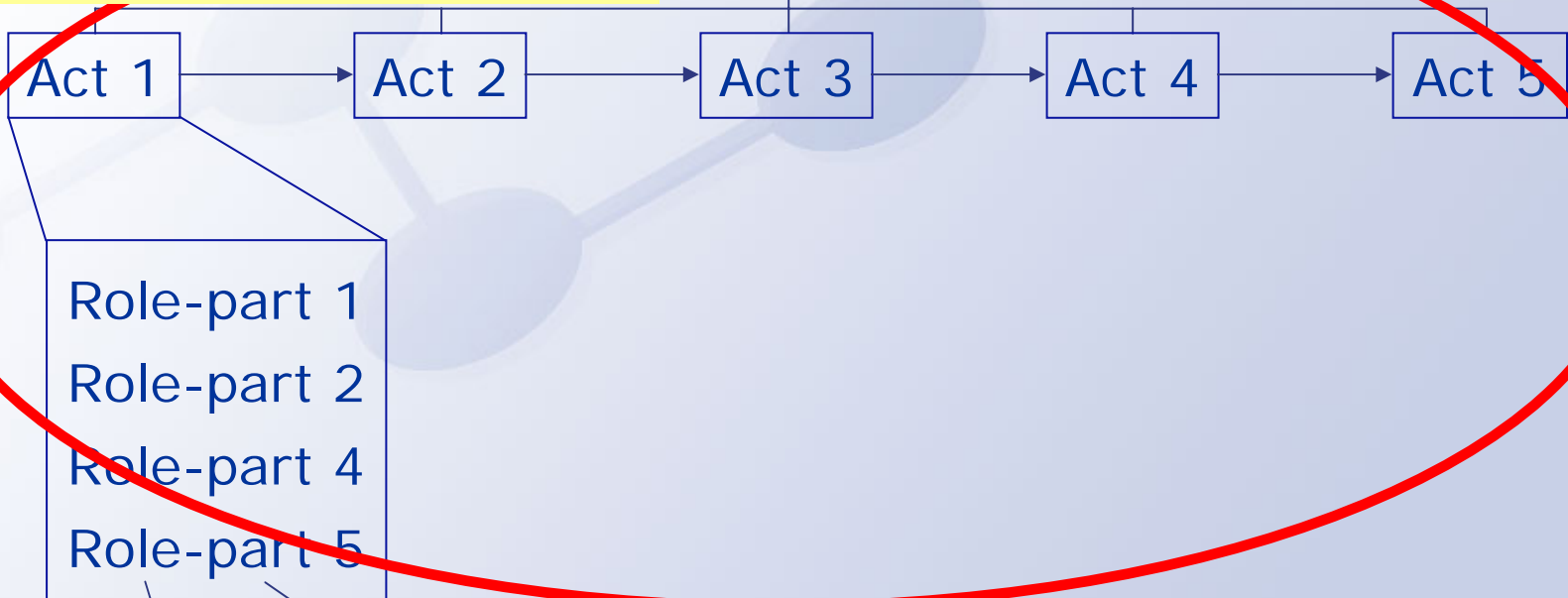
# IMS Learning Design

- Notation to represent units of learning
  - any delimited piece of education or training, such as a course, a module, a lesson, etc. More than just a collection of ordered resources to learn
  - People act in different **roles**
  - working towards certain **objectives**
  - by performing **learning and/or support activities**
  - within an **environment**, consisting of **learning objects and services** used in the performance of the activities.



... then orchestrate their interplay

play



Set up these constructs ....

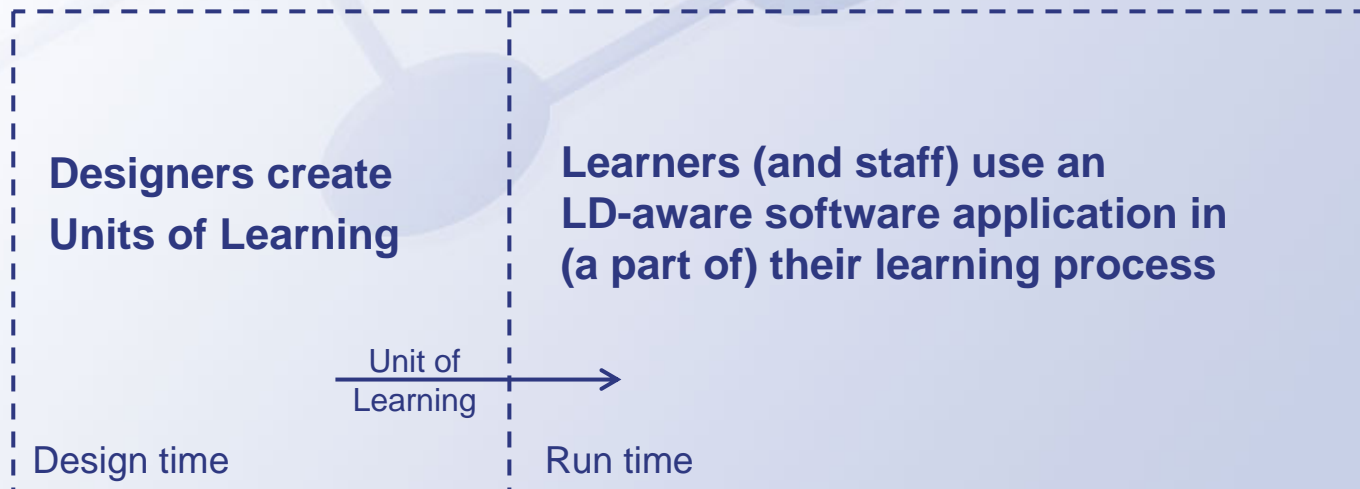


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with thanks to Bill Olivier of JISC

# IMSLD: Executable notation



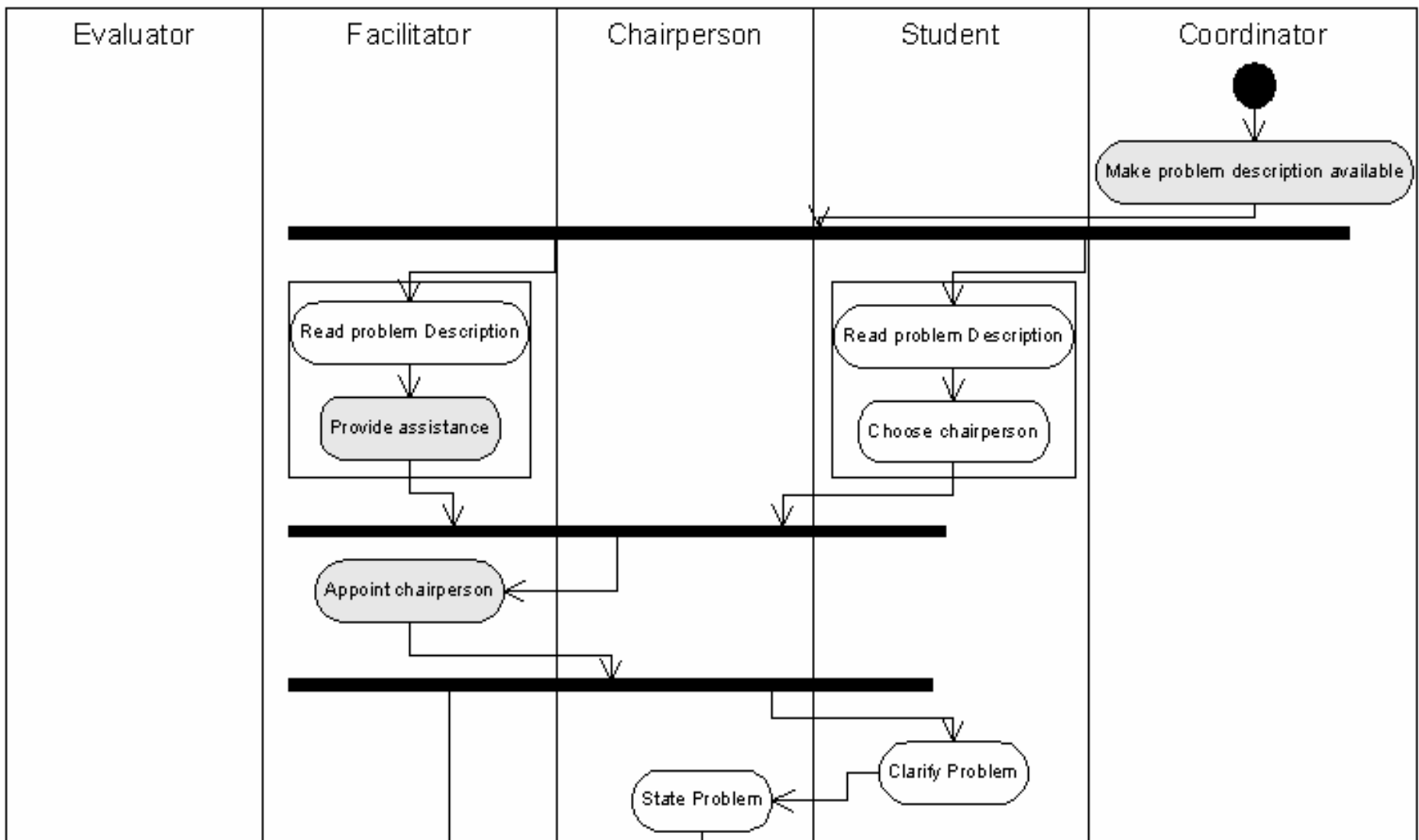
See both design-time and run-time tools at the Open Market



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# Who does what, when?





# Orchestrating Assessment & Learning

- **Summative assessment**
  - “summative assessment summarises the quality and characteristics of the student.
- **Formative assessment**
  - formative assessment relates to students’ learning processes, helping to guide them in their studies, providing feedback on areas of learning requiring further work, ....”  
*From “The Handbook for Economics Lecturers”*



# Some scenarios (1)

- Single learner scenarios:
  - Want to check the learner's level of understanding before sending him/her down a particular learning path (intake assessment);
  - Want to check whether a concept has been learned before allowing the learner to progress;
  - Want to provide a high level of feedback in a module to keep motivation high;
  - Want to end a course with an examination;



# Some scenarios (2)

- Multi learner scenarios:
  - Want to have individuals' answers be revealed to a group to promote discussion and learning;
  - Want to arrange for peer assessment;
  - Want to divide a set of students into several groups of more-or-less equally able students;
  - Want to divide a group of students into groups with individuals of differing levels of ability;
  - Want to give the best/worst performer in a group a particular role in a learning design;



# Needs

- Need to create Units of Learning incorporating tests, making them available at the right point in a learning flow
- Need to allow results of tests to be used in the flow of activities
- Need to allow information of learning to be used in a test



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# QTIv2.0

- OUNL participated in QTIv2.0
  - Using LD and QTI together
  - Synchronisation of QTI variables with LD properties
  - Variable naming and typing



## Unit of Learning

.....  
<locpers-property  
identifier="VPROP"/>  
.....

.....  
<decvar varname="VPROP"  
vartype="Integer"  
defaultval="0"/>  
.....

Design time

LD  
processor

QTI  
processor

VPROP

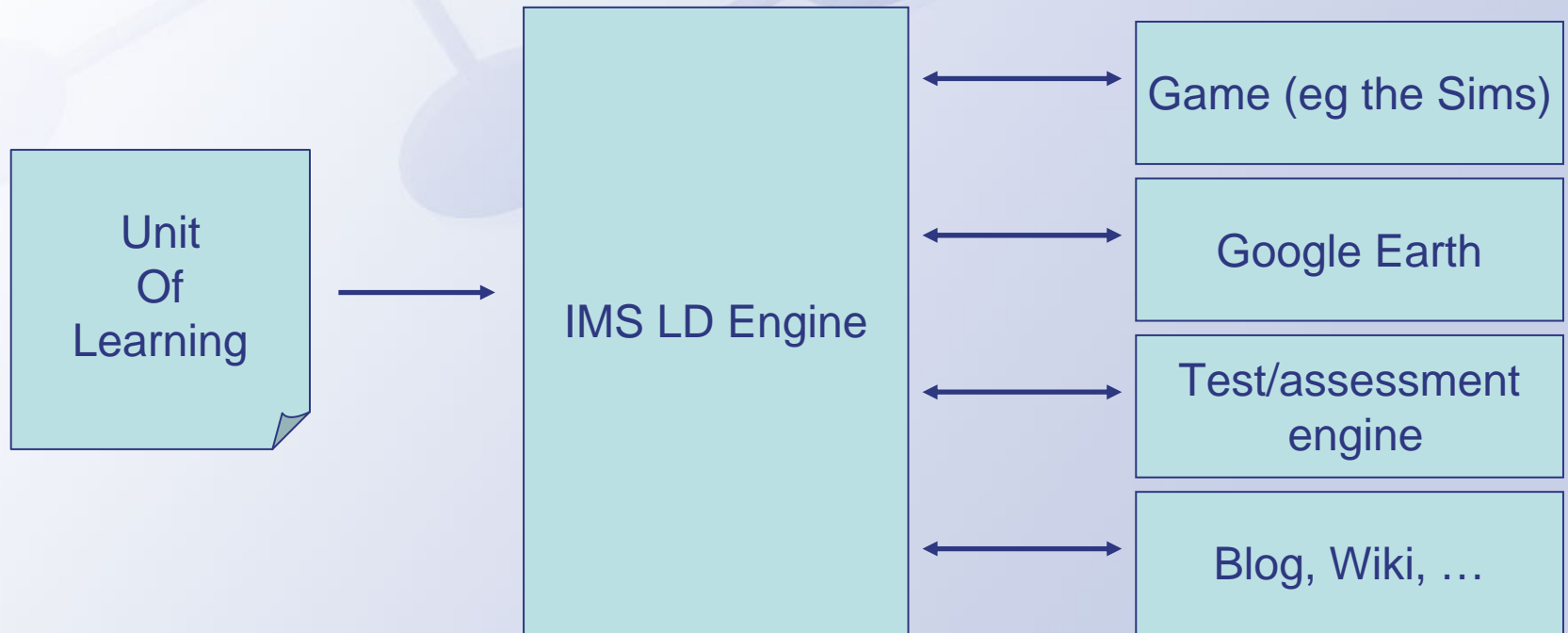
Run time



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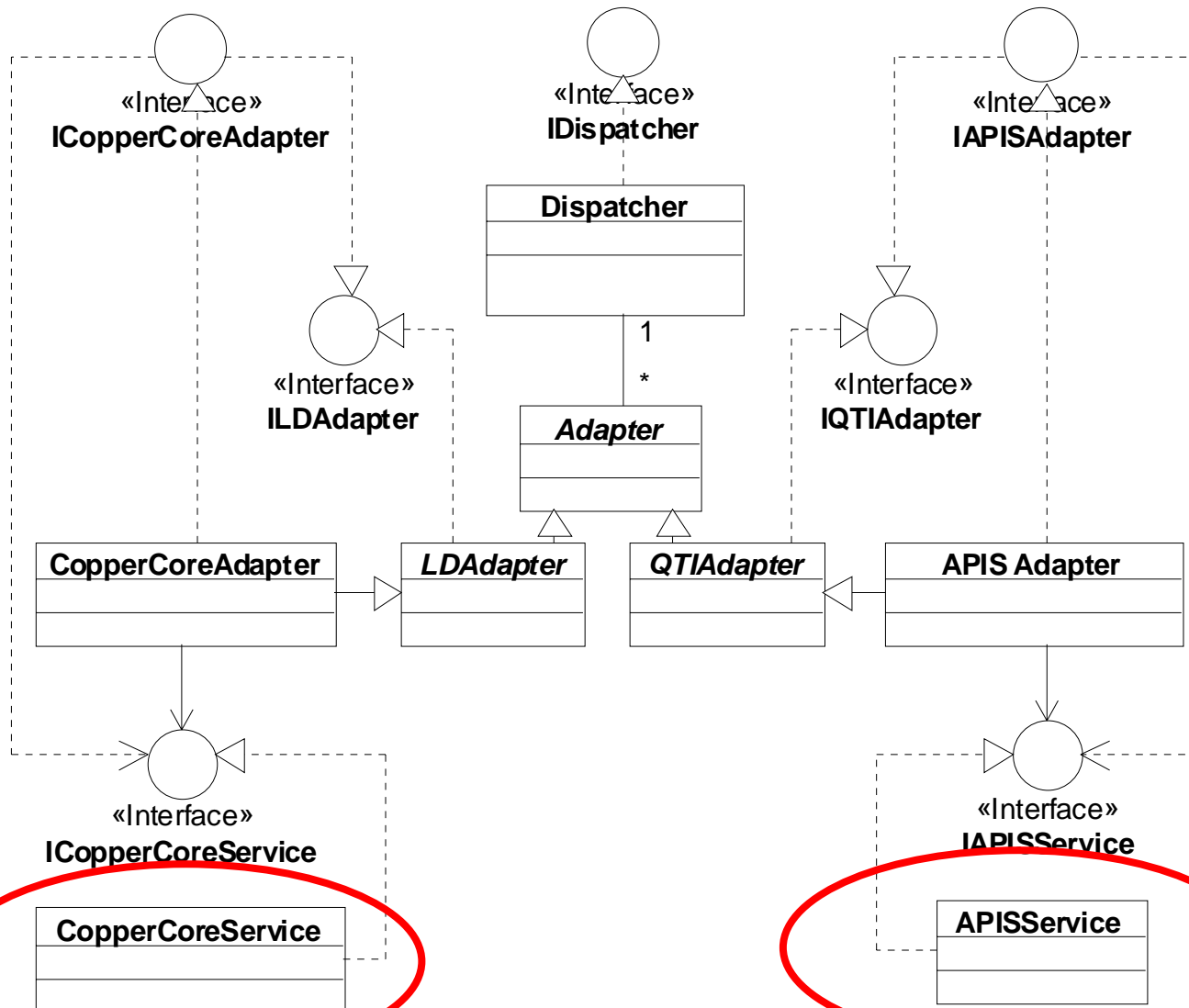
# R&D



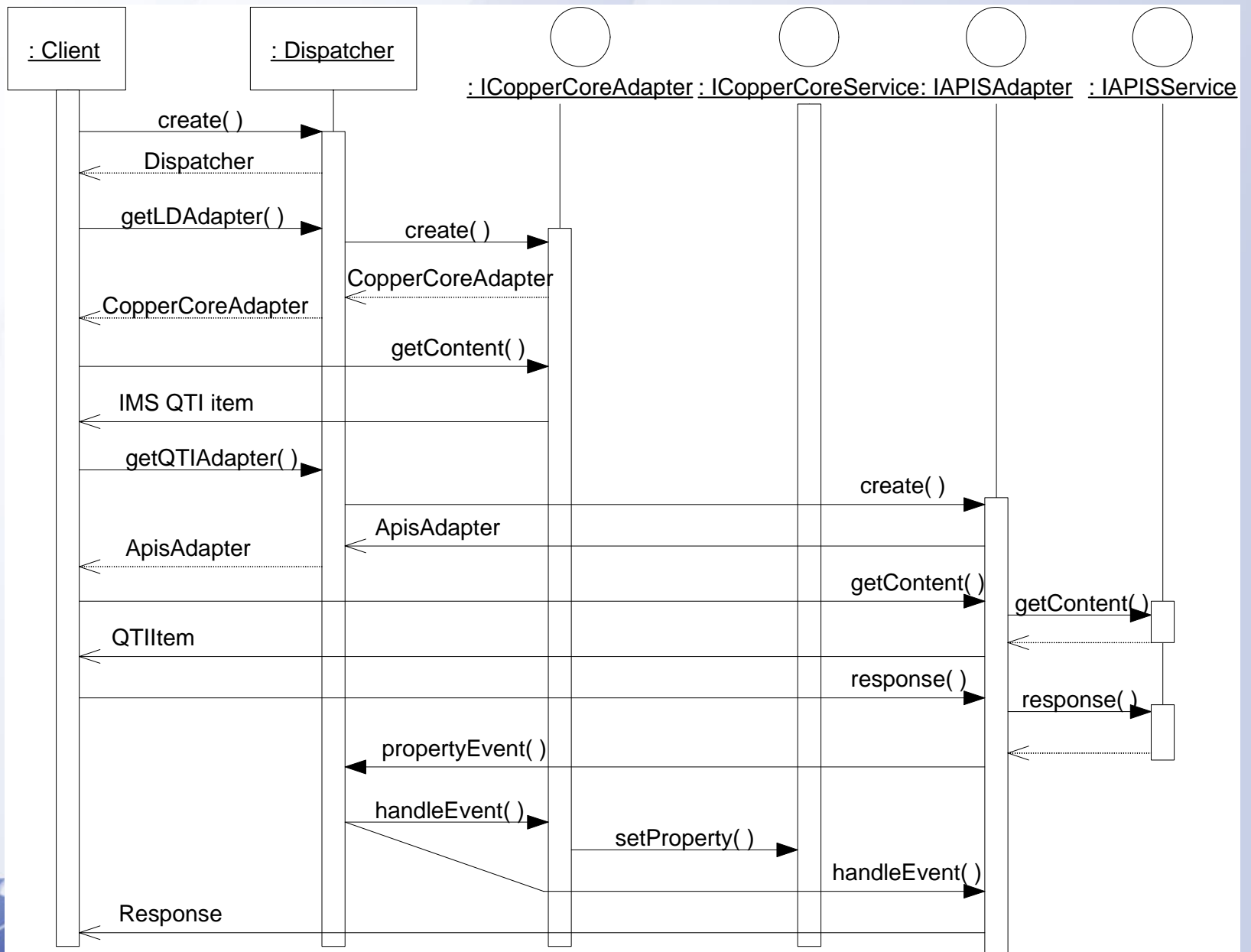
# CopperCore Service Integration

- Funded by JISC ELF toolkit strand
- Joint development of OUNL and OUUK based on earlier work done in the SLeD project
- integration of two services :
  - CopperCore for IMS LD specification
  - APIS for the IMS QTIv2 spec

# CopperCore Service Integration







# LD+QTI

- Why?
  - “Assessment should be more than merely a test at the end of instruction to see how students perform under special conditions; rather, it should be an integral part of instruction that informs and guides”
    - National Council of Teachers of Mathematics, Principles and Standards for School Mathematics (2000)
- How?
  - Following the LD+QTIv2.0 approach, implemented in the CopperCore package (v3.0)





Let's see ...



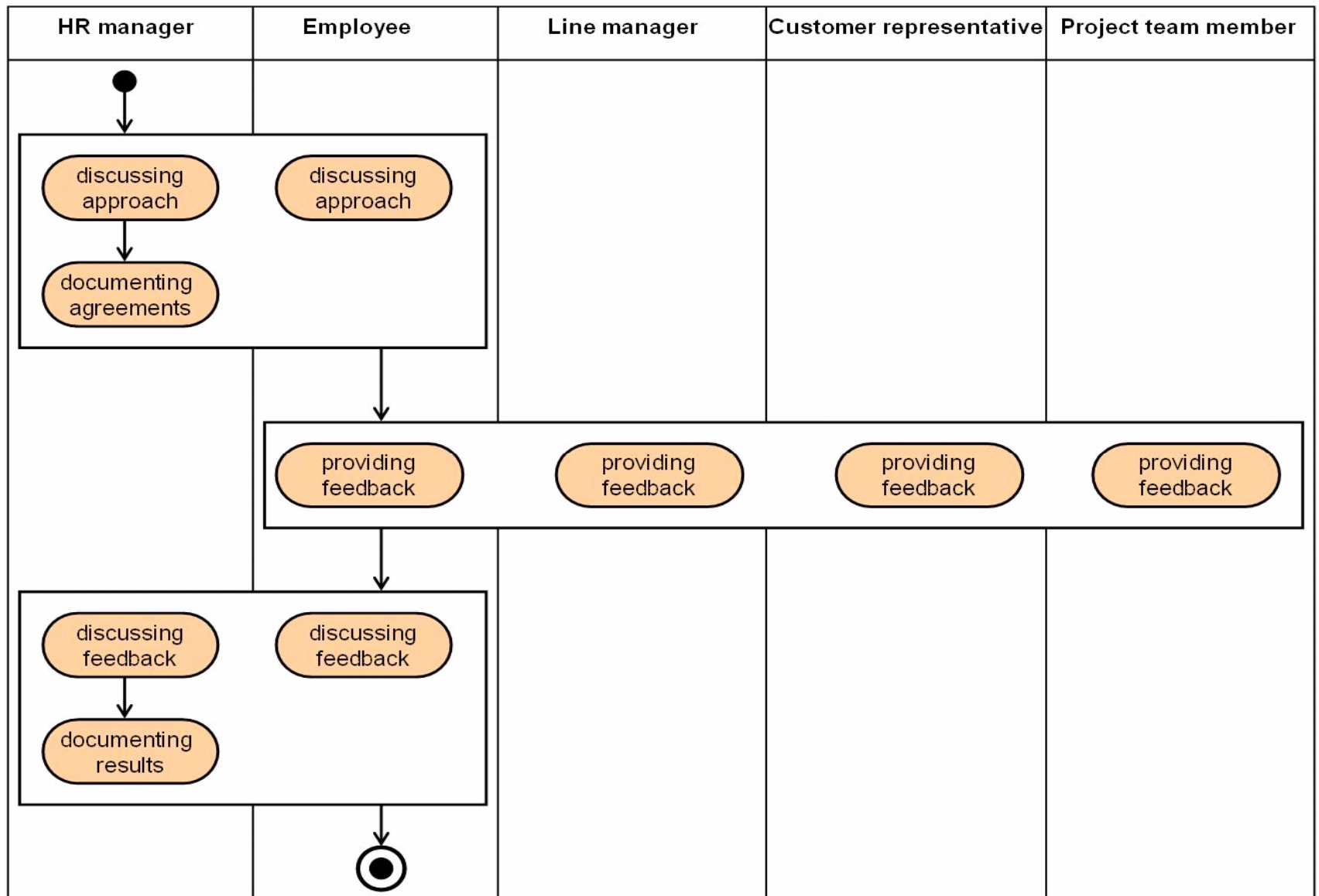
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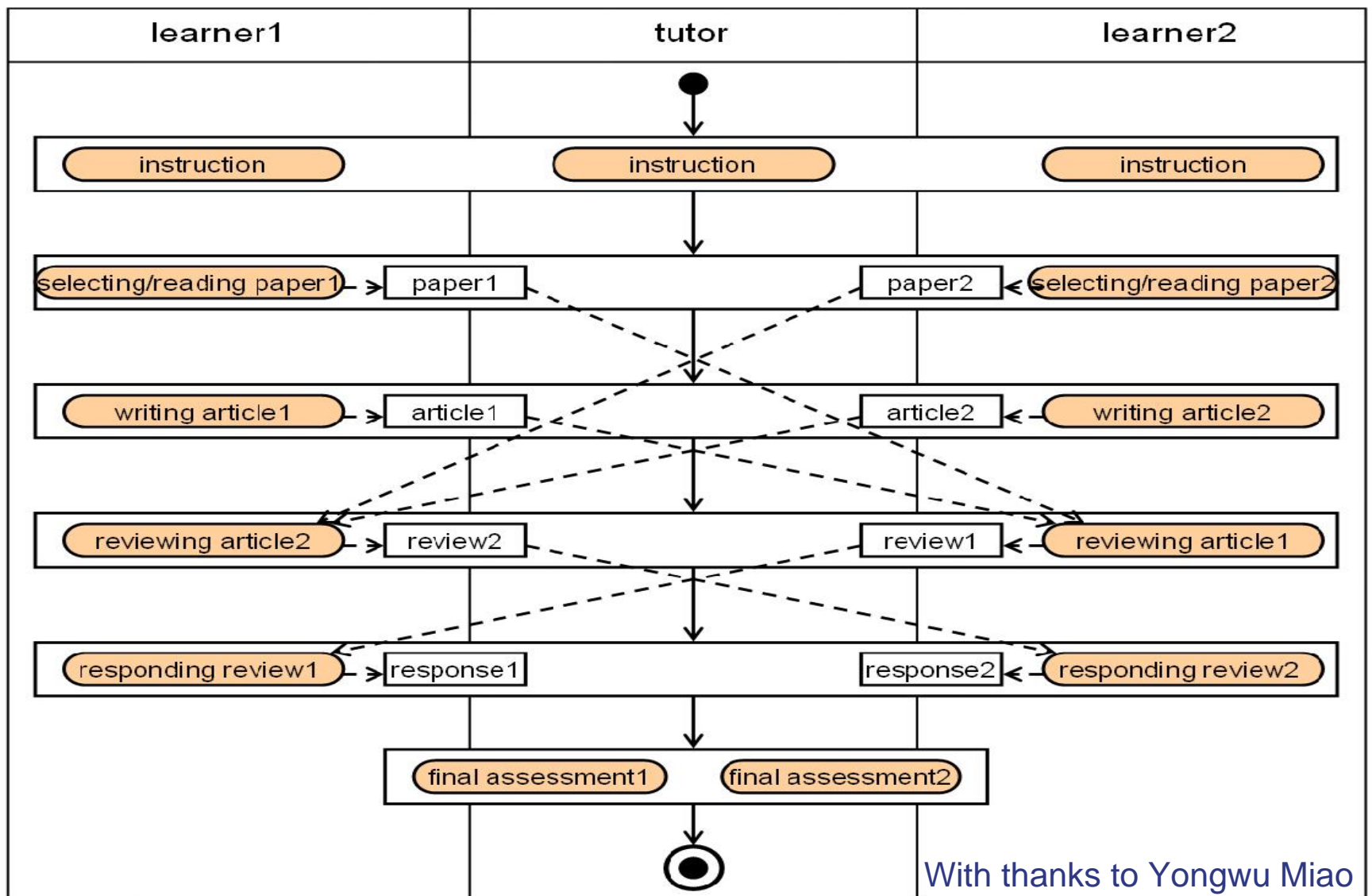
# Ongoing work

- CopperCore continues to be developed
  - Used as part of TENCompetence infrastructure
- APIS lives on
  - R2Q2 (JISC project)
  - Work at Universitat Pompeu Fabra (UPF, Barcelona)
- TENCompetence project work in supporting new forms of assessment
  - Assessment processes, Computer Supported Collaborative Assessment (CSCA)
  - Peer assessment, 360 degrees feedback, portfolio assessment, ...

# 360 degree feedback



# Peer Assessment



With thanks to Yongwu Miao

# Research questions

- How far can LD+QTI take us in supporting competence assessment in lifelong learning?
- Need for a richer, fuller degree of representation?
  - OUNL/CITO Assessment Model



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# Rounding off

- Need to integrate assessment in learning
- Approach and software available using open technical specifications
- Ongoing work in this area within TENCompetence project
  - [www.tencompetence.org](http://www.tencompetence.org)